20.(Amended) The airbag cushion of Claim 19, wherein said multifilament yarns exhibit a filament linear density of about 7 denier per filament or less.

30.(Amended) A coated side curtain airbag designed to protect vehicle occupants during a rollover collision, said cushion exhibiting a rolled packing volume factor of from about 17 to about 24; wherein said coated side curtain airbag exhibits a leak-down time after inflation of at least 7 seconds.

## REMARKS

Claims 1-39 are pending within this application. No claims have been canceled or added. Claims 1, 6, 7, 15, 19, 20, and 30 have been amended cosmetically in some circumstances as requested by the Office to either conform to U.S. practice as noted by the Office in the objections. The specification has been amended as requested by the Office to denote trademarks properly. Additionally, certain minor typographical errors have been corrected as well. Furthermore, the claimed airbag cushions have been more specifically presented as side curtain types designed to protect passengers during rollover collisions (and thus must exhibit long-term low, if not zero, gas permeability). Such a limitation is discussed throughout the specification in terms of the need to provide the now-inventive low coating levels to provide long-term gas leakage prevention during such rollover events, particularly with the availability to provide a much smaller packing volume for more efficient storage (since, in the past, prior to this invention, the coating thicknesses were to such a high level that packing volumes were inordinately high and storage efficiencies and article weights within target automobiles were compromised). In any event, no new matter has been submitted. Entry and due consideration

thereof such amendments are therefore earnestly solicited.

It is respectfully submitted that such amendments render moot the previous claim objections and rejections under 35 U.S.C. § 112, second paragraph. Applicants have provided the needed units of measurement for tensile strength and has specifically stated the structure of the airbag cushion involved. Furthermore, in terms of In re Slob considerations for Claims 15 and 30-31, Applicants do not fully understand the issue raised by the Office; Applicants did not claim an airbag exhibiting certain physical characteristics within Claim 15. To the contrary, the physical characteristics described within such a claim pertained to those exhibited by the particular film itself and thus was a limitation in terms of the film constituent, not a requirement limited to the airbag. As such, and in view of the amendments above, Applicants believe that reliance on this case is misplaced. As for Claims 30 and 31, there is no reason provided by In re Slob that Applicants cannot properly claim their invention of a side curtain rollover-protection airbag cushion exhibiting a certain level of low permeability (long-term leakage, e.g.), thereby indicating the necessity for such an inflation retention cushion during such specific long-term collision events, that also exhibits a heretofore unattained packing volume efficiency. Applicants respectfully submit that, in terms of what they consider to be their actual invention, they have supplied sufficient structural details within the claims for In re Slob to be inappropriate in this situation. Reconsideration and withdrawal of such objections and indefiniteness rejections are therefore earnestly solicited.

The Office has rejected Claims 1-8, 10-21, 24-33, and 35-39 under 35 U.S.C. § 102(e) as being anticipated by Li et al. ('186) as well as Claims 1-6, 8-19, and 22-39 under 102(b) as being anticipated by Menzel et al. ('666). Applicant respectfully disagrees with such bases of rejection, particularly in view of the present amendments to the claims. Side curtain rollover-prevention

airbag cushions are simply not the same as the driver or passenger side airbags to which these two patents are directed. It is true that low permeability is taught within such patents for such specific types of airbags, but only to the extent that regulated permeability upon a collision event is provided. Once such driver or passenger side airbags are inflated during a collision event, such airbags must instantaneously exhibit a certain degree of permeability to provide the needed cushioning effect. Without it, the driver or front seat passenger would, in essence, hit, face first, a very high pressure inflated bag which would not provide any cushioning benefit at all. In the past, such cushioning effects were provided by including strategically placed holes within the target airbag cushion in order to permit regulated gas (air) release upon inflation and contact by the driver and/or passenger. Due to the heat of such gasses, such a design was avoided since such holes permitted appreciable levels of very hot gasses to escape and potentially scald the driver and/or passenger. Thus, as discussed throughout these two patents, coatings were provided that would provide a certain degree of low permeability, but not to the extent that long-term inflation would be permitted. In essence, rollover-designed side curtain airbag cushions must, as thoroughly discussed by Applicant within his specification, retain high pressure inflation in order to remain sufficiently inflated during a collision event that lasts longer than a standard head-on accident (for which driver side and passenger side airbags have been specifically developed). Thus, since there is no discussion nor fair suggestion within either reference of the ability to provide rollover-designed airbag cushion protection (e.g., long-term inflation without appreciable leakage, just as presently claimed), in view of the claims as now written, it is respectfully submitted that neither reference is a proper anticipatory, not to mention obviousness-based, citation over the pending claims. Reconsideration and withdrawal of such improper rejections are therefore respectfully requested.

The Office has also rejected Claims 1, 3-8, 10-21, and 24-29 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-5, and 8 of U.S. Pat. No. 5,945,186. Applicant disagrees with the basis of such a rejection for the same reasons as for the anticipatory rejections above. Notably, the '186 patent concerns driver and/or passenger side airbags, not the same rollover-designed side curtain airbag cushions as now claimed. Thus, for the same reasons as delineated previously, such a basis of rejection is simply incorrect as the patented claims are not the same scope as those of the present application. Reconsideration and withdrawal thereof are therefore respectfully requested.

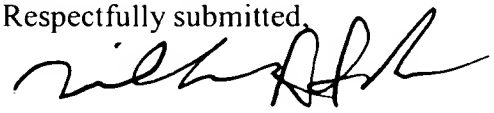
The Office has also provisionally rejected Claims 1-7, 10-20, 24-33, and 35-39 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-17 of copending U.S. Pat. Appl. No. 09/557,643. Applicants disagree with the position of the Office simply because a laminate film, as claimed in the '643 application, is clearly defined within the claims as well as within the specification thereof as follows: "[t]he film itself is produced prior to actual contact with the target airbag cushion, or fabric, surface. In order to apply such a film, a lamination procedure must be performed through the simultaneous exposure of heat and pressure over the film while in contact with the target surface." This is not a coating as claimed within the present application. A film must be pre-formed and laminated to the surface; a coating must be applied through certain techniques and then cured thereon, it cannot be laminated until a dimensionally stable surface has been formed, but that does not occur until curing is completed. There are thus clear patentably distinct differences. Reconsideration and withdrawal of such improper rejections are therefore respectfully requested.

## CONCLUSION

In view of all of the previous amendments and remarks, it is respectfully submitted that the pending claims are now in condition for allowance and it is requested that this application be passed on to issue.

February 14, 2003

Respectfully submitted,



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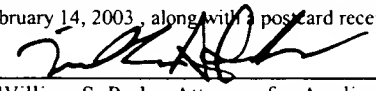
**CERTIFICATE OF MAILING**

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Box Non-Fee Amendment, Commissioner of Patents, Washington, DC 20231, on February 14, 2003, along with a postcard receipt.



William S. Parks, Attorney for Applicants

MARKED-UP VERSION OF AMENDMENTS TO 09/501,467

IN THE SPECIFICATION:

The paragraph under the heading "Cross Reference to Related Applications" has been amended to read as follows:

-- This application is a continuation-in-part of [co-pending] application 09/350,620, filed on July 7, 1999, now U.S. Pat. No. 6,117,366, which is a continuation-in-part of 09/335,257, filed on June 17, 1999, now U.S. Pat. No. 6,177,365. [This] These parent [application is] applications are herein entirely incorporated by reference.--

The paragraph beginning under the heading "Field of the Invention" on page 1 has been amended to read as follows:

-- This invention relates generally to coated inflatable fabrics and more particularly concerns airbag cushions to which very low add-on amounts of coating have been applied and which exhibit extremely low air permeability. The inventive inflatable fabrics are primarily for use in automotive restraint cushions that require low permeability characteristics (such as side curtain airbags). Traditionally, heavy, and thus expensive, coatings of compounds such as neoprene, silicones and the like, have been utilized to provide such required low permeability. The inventive fabric utilizes an inexpensive, very thin coating to provide such necessarily low permeability levels. Thus, the inventive coated inflatable airbag possesses a coating comprising an elastomeric material (or materials) in contact with the target fabric wherein the elastomeric material possesses a tensile strength of at least 2,000 psi and an elongation at break of at least 180%. The coating is then applied to the airbag surface in an amount of at most 2.5 ounces per

square yard (and preferably forms a film). The inventive airbag exhibits a characteristic leak-down time (defined as the ratio of inflated bag volume to bag volumetric leakage rate at 10 psi) of at least 5 seconds after inflation. The resultant airbag cushions, particularly low permeability cushions exhibiting very low rolled packing volumes, are intended to reside within the scope of this invention.--

The paragraph beginning on the last line of page 7 has been amended to read as follows:

--Accordingly, this invention is directed to an airbag cushion comprising a coated fabric, wherein said fabric is coated with an elastomeric composition in an amount of at most 2.5 ounces per square yard of the fabric; and wherein said airbag cushion, after long-term storage, exhibits a characteristic leak-down time of at least 5 seconds. Also, this invention concerns an airbag cushion comprising a coated fabric, wherein said fabric is coated with an elastomeric composition; wherein said elastomeric composition comprises at least one elastomer possessing a tensile strength of at least 2,000 and an elongation of at least 180%; and wherein said airbag cushion, after long-term storage, exhibits a characteristics leak-down time of at least 5 seconds. Additionally, this invention encompasses a coated airbag cushion which exhibits a rolled packing volume factor (measured as the rolled diameter of the airbag cushion to depth of coverage measured from the attachment point of the target automobile's roofline to lowest point of coverage below the roofline after [inflation)of] inflation) of at least 17.--

The paragraph beginning on line 18 of page 12 has been amended to read as follows:

--Of particular interest as the elastomer components within the inventive elastomeric compositions are, specifically, polyamides, polyurethanes, acrylic elastomers, hydrogenated nitrile rubbers (i.e., hydrogenated NBR), fluoroelastomers (i.e., fluoropolymers and copolymers containing fluoro-monomers), ethylene-vinylacetate copolymers, and ethylene acrylate copolymers. Also, such elastomers may or may not be cross-linked on the airbag surface. Preferably, the elastomer is a polyurethane and most preferably is a polycarbonate polyurethane elastomer. Such a compound is available from Bayer Corporaiton under the tradename [Impranil®] IMPRANIL®, including [Impranil®] IMPRANIL® 85 UD, ELH, and EHC-01. Other acceptable polyurethanes include [Bayhydrol®] BAYHYDROL® 123, also from Bayer; Ru 41-710, EX 51-550, and Ru 40-350, both from Stahl USA. Any polyurethane, or elastomer, for that matter, which exhibits the same tensile strength and elongation at break characteristics as noted above, however, are potentially available within the inventive coating formulation and thus on the inventive coated airbag cushion. In order to provide the desired leak-down times at long-term storage, however, the add-on weights of other available elastomers may be greater than others. However, the upper limit of 3.0 ounces per square yard should not be exceeded to meet this invention. The desired elastomers may be added in multiple layers if desired as long the required thickness for the overall coating is not exceeded. Alternatively, the [mulitple] multiple layer coating system may also be utilized as long as at least one elastomer possessing the desired tensile strength and elongation at break is utilized.--

The paragraph beginning on line 16 of page 13 has been amended to read as follows:

--Other possible components present within the elastomer coating composition are thickeners, antioxidants, antiblocking agents, crosslinking agents, surfactants, flame retardants, coalescent agents, adhesion promoters, and colorants. In accordance with the potentially preferred practices of the present invention, a dispersion (either solvent- or water-borne, depending on the selected elastomer) of finely divided elastomeric resin is compounded or a resin solution is compounded with a flame retardant to yield a compounded mix having a viscosity of about 8000 centipoise or greater. A polyurethane is potentially preferred, with a polycarbonate polyurethane, such as those noted above from Bayer and Stahl, most preferred. Other potential elastomeric resins include other polyurethanes, such as [Witcobond™] WITCOBOND™ 253 (35% solids), from Witco, and [Sancure] SANCURE®, from BFGoodrich, Cleveland, Ohio; hydrogenated NBR, such as [Chemisat™] CHEMISAT™ LCH-7335X (40% solids), from Goodyear Chemical, Akron, Ohio; EPDM, such as EP-603A rubber latex, from Lord Corporation, Erie, Pennsylvania; butyl rubber, such as Butyl rubber latex BL-100, from Lord Corporation; and acrylic rubber (elastomers), such as [HyCar™] HYCAR™, from BFGoodrich. This list should not be understood as being all-inclusive, only exemplary of potential elastomers. Furthermore, the preferred elastomer will not include any silicone, due to the extremely low tensile strength (typically below about 1,500 psi) characteristics exhibited by such materials. However, in order to provide effective aging and non-blocking benefits, such components may be applied to the elastomeric composition as a topcoat as long as the add-on weight of the entire elastomer and topcoat does not exceed 2.5 ounces per square yard. Additionally, elastomers comprising polyester or polyether segments (such polypropylene oxide) or other similar components, are undesirable, particularly at very low add-on weights (i.e., 0.8-1.2 oz/yd$^2$) due to

stability problems in heat and humidity aging (polyesters easily hydrolyze in humidity and polyethers easily oxidize in heat); however, such elastomers may be utilized in higher add-on amounts as long, again, as the 2.5 ounces per square yard is not exceeded.--

The paragraph beginning on line 20 of page 14 has been amended to read as follows:

--Among the other additives particularly preferred within this elastomer composition are heat stabilizers, flame retardants, primer adhesives, and materials for protective topcoats. A potentially preferred thickener is marketed under the trade designation NATROSOL™ 250 HHXR by the Aqualon division of Hercules Corporation which is believed to have a place of business at Wilmington, Delaware. In order to meet Federal Motor Vehicle Safety Standard 302 flame retardant requirements for the automotive industry, a flame retardant is also preferably added to the compounded mix. One potentially preferred flame retardant is [AMSPERSE] AMSPERSE® F/R 51 marketed by Amspec Chemical Corporation which is believed to have a place of business at Gloucester City New Jersey. Primer adhesives may be utilized to facilitate adhesion between the surface of the target fabric and the elastomer itself. Thus, although it is preferable for the elastomer to be the sole component of the entire elastomer composition in contact with the fabric surface, it is possible to utilize adhesion promoters, such as isocyanates, epoxies, functional silanes, and other such resins with adhesive properties, without deleteriously effecting the ability of the elastomer to provide the desired low permeability for the target airbag cushion. An adhesive primer coating may be applied directly to the fabric before applying the inventive high strength elastomeric coating to assure great adhesion strength.--

The paragraph beginning on line 11 of page 17 has been amended to read as follows:

--Two other tests which the specific coated airbag cushion must pass are the oven (heat) aging and humidity aging tests. Such tests also simulate the storage of an airbag fabric over a long period of time upon exposure at high temperatures and at relatively high humidities. These tests are actually used to analyze alterations of various different fabric properties after such a prolonged storage in a hot ventilated oven (>100°C) (with or without humid conditions) for 2 or more weeks. For the purposes of this invention, this test was used basically to analyze the air permeability of the coated side curtain airbag by measuring the characteristic leak-down time (as discussed above, in detail). The initially produced and stored inventive airbag cushion should exhibit a characteristic leak-down time of greater than about 5 seconds (upon re-inflation at 10 psi gas pressure after the bag had previously been inflated to a peak pressure above about 15 psi and allowed to fully deflate) under such harsh storage conditions. Since polyurethanes, the preferred elastomers in this invention, may be deleteriously affected by high heat and humidity (though not as deleteriously as certain polyester and polyether-containing elastomers), it may be prudent to add certain components within a topcoat layer and/or within the elastomer itself. Antioxidants, antidegradants, and metal deactivators may be utilized for this purpose. Examples include, and are not intended to be limited to, [Irganox®] IRGANOX® 1010 and [Irganox®] IRGANOX® 565, both available from CIBA Specialty Chemicals. This topcoat may also provide additional protection against aging and thus may include topcoat aging improvement materials, such as, and not limited to, polyamides, NBR rubbers, EPDM rubbers, and the like, as long as the elastomer composition (including the topcoat) does not exceed the 2.5 ounces per square yard (preferably much less than that, about 1.5 at the most) of the add-on weight to the target fabric.--

The paragraph beginning on line 15 of page 21 has been amended to read as follows:

--Recently, a move has been made away from both the multiple-piece side curtain airbags (which require great amounts of labor-intensive sewing to attached woven fabric blanks) and the traditionally produced one-piece woven cushions, to more specific one-piece woven fabrics which exhibit substantially reduced floats between woven yarns to substantially reduce the unbalanced shifting of yarns upon inflation, such as in Ser. No. 09/406,264, now U.S. Pat. No. 6,220,309, to Sollars, Jr., the specification of which is completely incorporated herein. These one-piece woven bags are generally produced on dobby or jacquard fluid-jet looms, preferably the utilized one-piece airbag is made from a jacquard weaving process. With such an improvement, the possibility of high leakage at seams is substantially reduced. These airbags provide balanced weave constructions at and around attachment points between two layers of fabrics such that the ability of the yarns to become displaced upon inflation at high pressures is reduced as compared with the standard one-piece woven airbags. Unfortunately, such inventive one-piece woven bags are still problematic in that the weave intersections may be displaced upon high pressure inflation such that leakage will still most likely occur at too high a rate for proper functioning. As a result, there is still a need to coat such one-piece woven structures with materials which reduce and/or eliminate such an effect. However, such one-piece woven structures permit extremely low add-on amounts of elastomeric coatings for low permeability effects. In fact, these inventive airbags function extremely well with low add-on coatings below 1.5 and as low as about 0.8 ounces per square yard.--

IN THE CLAIMS:

1.(Amended) A [An] side curtain airbag cushion designed to protect vehicle occupants during a rollover collision, said cushion comprising a [coated] fabric, wherein said fabric is coated with an elastomeric composition in an amount of at most 2.5 ounces per square yard of the fabric; and wherein said airbag cushion exhibits a characteristic leak-down time after inflation of at least 5 seconds.

6.(Amended) The airbag cushion of Claim 4, wherein said polyamide yarns are multifilament yarns [characterized by] exhibiting a linear density of about 210-630 denier.

7.(Amended) The airbag cushion of Claim 6, wherein [wherein] said multifilament yarns [are characterized by] exhibit a filament linear density of about 7 denier per filament or less.

15.(Amended) A [An] side curtain airbag cushion designed to protect vehicle occupants during a rollover collision, said cushion comprising a [coated] fabric, wherein said fabric is coated with an elastomeric composition; wherein said elastomeric composition comprises at least one elastomer possessing a tensile strength of at least 2,000 psi and an elongation of at least 180%; and wherein said airbag cushion exhibits a leak-down time after inflation of at least 7 seconds.

19.(Amended) The airbag cushion of Claim 18, wherein said polyamide yarns are multifilament yarns [characterized by] exhibiting a linear density of about 210-630 denier.

20.(Amended) The airbag cushion of Claim 19, wherein said multifilament yarns [are

characterized by] exhibit a filament linear density of about 7 denier per filament or less.

30.(Amended) A coated side curtain airbag designed to protect vehicle occupants during a rollover collision, said cushion exhibiting a rolled packing volume factor of from about 17 to about 24; wherein said coated side curtain airbag exhibits a leak-down time after inflation of at least 7 seconds.